AD-A114 024 THOMAS ELECTRONICS INC WAYNE NJ F/G 9/1
MANUFACTURING METHODS AND TECHNOLOGY (MM&T) SPECIFICATIONS FOR --ETC(U)
JAN 82 F M BRUNO DAAK70-80-C-0168
UNCLASSIFIED TEI-A009-5 NL

END
DATE FILMED
05-82
DTIC

TEI A009-5 DAAK70-80-C-0168 31 January 1982

Thomas Electronics, Inc.
100 Riverview Drive
Wayne, NJ 07470

FIFTH QUARTERLY REPORT

for period

1 October 1981 - 31 December 1981

Approved for public release; distribution unlimited

Manufacturing Methods and Technology (MM&T) Specifications for Miniature Cathode Ray Tube

prepared by

F. M. Bruno

Thomas Electronics, Inc.
100 Riverview Drive
Wayne, NJ 07470

prepared for

Procurement and Production Directorate
USA MERADCOM
Fort Belvoir, VA 22060

THOMAS ELECTRONICS, INC.
100 Riverview Drive, Wayne, New Jersey 07470 / 201-696-4800 / TWX: 710-988-5836 / Cable: TOMTRONICS

DISCLAIMER

The findings in this report are not to be construed as an official Department of the Army position unless so designated by other authorized documents.

DISPOSITION

Destroy this report when it is no longer needed. Do not return it to the originator.

ACKNOWLEDGEMENT

This project has been accomplished as part of the US Army Manufacturing Methods and Technology (MM&T) Program which has as its objective the timely establishment of manufacturing processes, techniques, or equipment to insure the efficient production of current or future defense programs.

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER TEI A009-5	2. GOVT ACCESSION NO. AD-A114 024	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) MANUFACTURING METHODS AND TECHNOLOGY (MM&T) SPECIFICATIONS FOR MINIATURE CATHODE RAY TUBE		5. TYPE OF REPORT & PERIOD COVERED Fifth Quarterly Report 1 Oct 81 - 31 Dec. 81
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) F. M. Bruno		8. CONTRACT OR GRANT NUMBER(s) DAAK70-80-C-0168
9. PERFORMING ORGANIZATION NAME AND ADDRESS Thomas Electronics, Inc. 100 Riverview Drive Wayne, NJ 07470		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Procurement and Production Directorate USA MERADCOM Fort Belvoir, VA 22060		12. REPORT DATE 31 January 1982 13. NUMBER OF PAGES 12
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Miniature cathode ray tube

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The two CRT assemblies for the 2nd Submission of Phase I - Engineering Samples were successfully fabricated, acceptance-tested, and delivered to NV&EOL.

TEI proposed a revision to its PERT Chart to allow sufficient time for the engineering and reliability testing stipulated.

(Over)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. ABSTRACT (contd.)

by MM&T H799838 for Phase II and Phase III of the project. The COR believed that TEI's projected revisions in the completion date could jeopardize the Army's schedule for the Advanced Attack Helicopter (AAH) and, therefore, joint efforts and adjustments are in progress to shorten the proposed production and testing schedule by four months.

Manufacturing Methods and Technology (MM&T) Specifications for Miniature Cathode Ray Tube

FIFTH QUARTERLY REPORT

for period

1 October 1981 - 31 December 1981

The object of this study is to develop design, performance, and test specifications for the Miniature Cathode Ray Tube (CRT) assembly suitable for use in the Integrated Helmet and Display Sight System (IHADSS) of the Army Advanced Attack Helicopter (AAH).

Contract Number: DAAK70-80-C-0168

Approved by:

M. L. Beasty
Vice President - Engineering

Approved by:

F. M. Bruno
Program Manager

Approved for public release; distribution unlimited

ABSTRACT/SUMMARY

The two CRT assemblies for the 2nd Submission of Phase I - Engineering Samples were successfully fabricated, acceptance-tested, and delivered to NV&EOL.

TEI proposed a revision to its PERT Chart to allow sufficient time for the engineering and reliability testing stipulated by MM&T H799838 for Phase II and Phase III of the project. The COR believed that TEI's projected revisions in the completion date could jeopardize the Army's schedule for the Advanced Attack Helicopter (AAH) and, therefore, joint efforts and adjustments are in progress to shorten the proposed production and testing schedule by four months.

TABLE OF CONTENTS

1.0 PURPOSE

The purpose of this Manufacturing Methods and Technology (MM&T) contract is to establish production methods and facilities required to produce the Miniature Cathode Ray Tube Assembly required for the Integrated Helmet and Display Sight System (IHADSS) of the Army Advanced Attack Helicopter (AAH).

The primary objectives are to develop vendor sources for the required individual components and establish viable production techniques to meet the necessary monthly production rate. The product produced will be required to meet the mechanical, electrical, performance, and environmental parameters of MM&T H799838.

2.0 GLOSSARY

AAH	Advanced Attack Helicopter
COR	Contracting Officer's Representative
CRT	Cathode Ray Tube
EM	Equipment Manufacturer
IHADSS	Integrated Helmet and Display Sight System
MERADCOM	Mobility Equipment Research and Development Command
MM&T	Manufacturing Methods and Technology
NV&EOL	Night Vision & Electro-Optics Laboratory
PERT	Program Evaluation and Review Techniques
TEI	Thomas Electronics, Inc.
TIR	Total Indicated Range

3.0 NARRATIVE AND DATA

3.1 Problem Areas and Solutions.

In order to duplicate the EM's test facilities so that CRTs could be tested at TEI according to all the requirements of specification MM&T H799838, TEI purchased and received test equipment from the EM. Until the new test equipment could be installed, TEI continued to send CRT assemblies to the EM for evaluation and correlation.

A CRT assembly with a 1.1" radius faceplate incorporated a number of changes to improve contrast, increase focus voltage and eliminate left-side raster distortion. A favorable report was received from the EM. All performance aspects were within the specification limits. Deflection sensitivity was at the lower limit but was acceptable. Pattern distortion exhibited barreling but it, too, was within specification.

Two additional CRT assemblies were fabricated for the 2nd Submission of Phase I - Engineering Samples. These were identical to the above except for a 1.3" radius faceplate. The increase to 1.3" was made to reduce barreling and to improve deflection sensitivity. During preliminary testing, these two assemblies were found to be out of spec for sensitivity. Upon review of data, the COR accepted one of these CRTs and TEI reworked the other.

In December, the COR witnessed source testing of the two CRTs with the 1.3" radius faceplate. They were accepted and shipped to NV&EOL as the 2nd Submission of Phase I - Engineering Samples.

3.2 Rescheduling of Phases I, II, and III.

TEI's Quality Assurance Department developed a proposed Environmental Testing Schedule for the Phase II - Confirmatory Samples and submitted it to the COR. Time elements for separate tests were plotted, for sequential testing and evaluation, in weeks of 5 working days each. The total time required amounted to 98 working days, or over 4-1/2 months. The time frame for the environmental testing would be longer than the total time allotted in the contract for the entire Phase II - Confirmatory Samples.

After discussion with the COR, TEI reworked its Environmental Testing Schedule reducing the total time from 98 to 75.5 days. TEI's revised PERT Chart (dated November 1981) incorporating the reduced time frame for the environmental testing required by the contract during Phase II, reflected an appreciable variance in the completion date from that stipulated in the contract.

During a December meeting, the COR advised TEI that the estimated delay in completion of the miniature CRT Program could jeopardize the Army's schedule for the Advanced Attack Helicopter (AAH).

TEI proposed modifications to the individual testing procedures and estimated that two months could be saved if the environmental testing could be conducted simultaneously with the reliability testing during Phase II.

The COR is to review TEI's recommendations and advise on appropriate action.

Phase I -
Engineering Sample

Side View

Front View

4.0 CONCLUSIONS

Two CRT assemblies for the 2nd Submission of Phase I - Engineering Samples were successfully fabricated, acceptance-tested, and delivered to NV&EOL. The projected completion date in TEI's proposed revision to its PERT Chart (November 1981) may be shortened by two months by the mutual cooperation of TEI and the COR to adjust the environmental and reliability testing requirements of MM&T H799838. Efforts will continue to reach agreement on other areas that may reduce to COR's proposed schedule period.

5.0 PROGRAM FOR NEXT INTERVAL

The program for the next quarter is as follows:

1. Complete fabrication and test of two CRT assemblies for the 3rd Submission of Phase I - Engineering Samples. Ship sample CRTs with accompanying technical data items to the COR.
2. Commence fabrication and test of ten CRT assemblies for Phase II - Confirmatory Samples.
3. Resolve test requirements and procedures with the COR in order to shorten the completion date (projected by TEI in November 1981) by an estimated four months.
4. Maintain detailed test records for compiling into technical data items required by the contract.
5. Prepare and submit monthly status reports and also the draft and final quarterly reports.

6.0 DISTRIBUTION LIST

ADDRESSES	NO. OF COPIES
Hughes Aircraft Company Industrial Products Division 6155 El Camino Real ATTN: K. Fujimoto Carlsbad, CA 92008	1
Westinghouse Electric Corporation Industrial & Government Tube Division Westinghouse Circle ATTN: J. Funair MS224 Horseheads, NY 14845	1
Electron Tube Division Litton Industries 960 Industrial Road ATTN: James Wurtz San Carlos, CA 94070	1
Defense Documentation Center 5010 Duke Street ATTN: DDC-IRS Cameron Station (Bldg. 5) Alexandria, VA 22314	2 (Unclassified)
Director Night Vision & Electro-Optics Laboratory ATTN: DELNV-SI-SPT (Mr. Phil Deane) Fort Belvoir, VA 22060	5
Director U.S. Army Electronics & Development Command Night Vision & Electro-Optics Laboratory ATTN: DELNV-RM-RA (M. Pabto) Fort Belvoir, VA 22060	1
EMI GENCOM INC. 80 Express Street ATTN: Mr. Fred Belasco Plainview, NY 11803	1
Naval Air Development Center ATTN: Code 6022 (Mr. J. H. Brindle) Warminster, PA 18974	1

ADDRESSES	NO. OF COPIES
Air Force Avionics Laboratory ATTN: AFWAL/AAAT (Mr. John Mysing) Wright-Patterson AFB, OH 45433	1
Electronic Technology & Devices Laboratory ATTN: DELET-BD (Dr. Elliott Schlam) Fort Monmouth, NJ 07703	1
Rockwell International Corporation Defense Electronics Operations 3370 Miraloma Avenue ATTN: Mr. Chuck McConkle Anaheim, CA 92803	1
Hughes Aircraft Company Aerospace Groups Electro-Optical & Data Systems Group Centinela & Teale Streets ATTN: Mr. Michael Ernstoff Culver City, CA 90230	1


ATE
LME